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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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November 5, 2001

CERTIFIED RETURN RECEIPT
7099 3400 0016 8896 4455

Mr. Daniel Sheppard, President
GoldTerra, Incorporated
4088 East Airport Road
P. O. Box 783
Price, Utah 84501

Re: Initial Review of Notice of Intention to Commence Large Mining Operations, GoldTerra, Inc., Black Knight Mine, M/015/078, Emery County, Utah

Dear Mr. Sheppard:

The Division has completed a review of your draft Notice of Intention to Commence Large Mining Operations for the Black Knight Mine, located in Emery County, Utah, which was received August 13, 2001. After reviewing the information, the Division has the following comments which will need to be addressed before tentative approval may be granted. The comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion. Please provide a response to this review by November 26, 2001.

The comments are listed below under the applicable Minerals Rule heading. Please format your response in a similar fashion. **Please address only the items requested in this review response or you may send replacement pages of the original notice using redline and strikeout, so we can see what changes have been made. After the notice is accepted, we will then ask that you send us two copies of the complete and corrected plan. Upon finalization of the permit, we will return one copy stamped "approved" for your records.** Please provide a response to this review by

The Division will suspend further review of the Black Knight Mine NOI until your response to this letter is received. If you have any questions in this regard please contact me, Paul Baker, or Doug Jensen of the Minerals Staff. If you wish to arrange a meeting to sit down and discuss this review, please contact us at your earliest convenience. Thank you for your cooperation in completing this permitting action.

Sincerely,

D. Wayne Hedberg
Permit Supervisor
Minerals Regulatory Program

jb
Attachment: Review
cc: Will Stokes, SITLA

REVIEW OF NOTICE OF INTENTION TO COMMENCE LARGE MINING OPERATIONS

GoldTerra, Inc.
Black Knight Mine

M/015/078

R647-4-104 - Operator's, Surface and Mineral Ownership

The land is managed by the School and Institutional Trust Lands Administration.

R647-4-105 - Maps, Drawings & Photographs

105.1 Topographic base map, boundaries, pre-act disturbance
The base maps included in the plan do not indicate how mining areas 2 & 3 will be accessed. Please modify the maps to show where these features will be located and provide a statement on how they will be constructed and reclaimed. Include the cost of reclaiming these features in the surety estimate. (DJ)

105.2 Drawings or Cross Sections (slopes, roads, pads, etc.)
Section R647-4-107.5 states that the proposed mining plan will have a series of highwalls and terraces as shown on Plate 3. The proposed mining surfaces shown on Plate 3 indicate that the final surface will not contain these features. (DJ)

R647-4-106 - Operation Plan

106.2 Type of operations conducted, mining method, processing etc.
Please state how the material from mining area 3 will be transported to the processing facilities.

The plan says that "upon completion of mining, mined areas will be sloped and configured as shown on Plate 4. The surfaces reflected as post-mining surfaces are surfaces shown after mining on Plate 3. Please indicate the resloped and reconfigured areas on Plate 4.

Please state what methods will be used to regrade and reduce the Mancos slopes during the mining operation. (DJ)

106.5 Existing soil types, location, amount
There are six soils shown on the soils map in Section 4. These are:

- Badlands (nearly barren shale). No samples were taken of this soil.
- Chipeta-Badland-Persayo Complex. This is the most common soil type in the proposed disturbed area. Sample 2 was a composite sample of the top ten inches of this soil. Because it was a composite sample, it does not show whether some of the soil would be more suitable for salvage than the entire ten-inch column. The sodium adsorption ratio (SAR) and electrical conductivity (EC) values were

elevated but not extreme. The selenium content, 0.16 ppm, was higher than recommended for agricultural soils but not extreme. Slightly elevated selenium levels are common in the area, and most native plant and animal species are adapted to these levels. While the chemical analyses of this soil indicate some limitations, and while there may be areas within the area mapped as this soil type where the soil is not usable, the Division considers this soil to be salvageable for reclamation.

- Stent-Chipeta Complex. Shallow to deep cobbly alluvium over shale with outcrops of shale and shallow clayey soils over shale. A composite sample of the top 30 inches of this soil was taken and analyzed, and the results show no limitations. The text of Section 4 says it would be rated poor when considering rock fragment content; however, the description "cobbly" indicates it has between 15 and 35 percent cobbles which is not limiting for a rangeland setting.

- Ravola-Toddler Complex. Deep soils formed from alluvium. Loam, sandy clay loam, and silty clay loam textures with pale brown colors. A composite sample of the top 20 inches of this soil was taken and analyzed, and the results show no limitations.

- Narrow Ridgetop Soils. Light colored sandy loam soils overlying stony alluvium on shale located on a narrow ridgetop near the center of mining area 1. No samples were taken of this soil.

- Badland-Rubbleland. Very stony colluvial deposits and shale outcrops on steep mesa side slopes. No samples were taken of this soil. This soil is basically shale outcrops with a thin sandstone or sandstone-derived soil veneer in some areas. (PBB)

The plan for salvaging and redistributing soils is not consistent. Page 4 of Section 1 says no topsoil or vegetation is present on the proposed mining area; therefore, reseeding of the area is not planned. This contradicts Sections 4 and 5, which have soils and vegetation information. It also contradicts other portions of Section 1 which discuss soil salvage, storage, and redistribution plans.

Section 106.6 of Section 1 says that, of the six soil types, only the Ravola-Toddler Complex contains suitable topsoil for salvage and replacement. The application says three other soil types, the Stout [assume Stent]-Chipeta Complex, the Narrow Ridgetop soils, and the Badland-Rubbleland area, contain some soil and rocks with minor amounts of vegetation. The remaining soils, the Badlands and Chipeta-Badland-Persayo Complex, are basically barren shale with very poor soil characteristics.

Under the proposal, twelve inches of soil from the Ravola-Toddler Complex would be salvaged. This comes to 14,407 cubic yards which means the area from which this soil would be salvaged is 8.93 acres.

The Division is willing to accept the plan to redistribute twelve inches of soil over the area with Ravola-Toddler soils and believes revegetation should be possible with this much growth medium. However, based on information in the soil survey, much more soil is available from this area than the applicant plans to salvage. The soil survey description indicates this soil is from 30 to over 60 inches deep. Assuming an average total depth of 45 inches, 54,027 cubic yards of soil would be available for salvage in this area. This would be enough soil to cover an area of 33.5 acres with twelve inches of soil. It is obviously not certain this much soil is available, but because there may be limited amounts of soil available for salvage from other areas of the mine, the applicant needs to investigate how much soil could be used from the Ravola-Toddler Complex.

The Division does not agree with the applicant's assessment of soil suitability for some of the other areas. The chemical analyses of the Stent-Chipeta Complex soil showed no limitations, and coarse fragment content up to 35 percent should not be a concern. This soil is probably variable, so there may be areas where soil should not be salvaged; however, the applicant needs to determine how much of this soil could be salvaged. The sample that was analyzed was a composite sample consisting of material from the top 30 inches. As with the Ravola-Toddler Complex, it might be possible to salvage more than twelve inches of soil from this area and use it in other areas. One such area where it might be possible to use this soil is in the Badland-Rubbleland area where topsoil exists but where salvage may be impractical.

The sample taken of the Chipeta-Badland-Persayo Complex soil was a composite sample of the upper ten inches. The results indicated this soil is somewhat marginal because of high SAR and EC levels, but because of the way the sample was taken, it is not known whether some parts of the soil, the upper few inches, for example, have more favorable characteristics. Even if the upper ten inches of the soil is uniform, the Division considers it usable. Many native species are adapted to the SAR and EC levels found in this soil. Like soil of the Stent-Chipeta Complex, however, this soil is variable with areas that should not be salvaged.

Based largely on the photographs in the application and the Division's knowledge of the area, the Division agrees with the applicant's plan to salvage as much soil as possible in the Badland-Rubbleland area. Salvage should be done in those specific areas where shale is not exposed and where it is possible to gain access. As discussed above, if salvage is not practical in part of this area, excess soil from other areas might be used. The Division agrees that soils in the Badland areas should not be salvaged.

It may be possible to salvage more of the Narrow Ridgetop soil than the applicant assumes. This soil is on a sandstone cap which would need to be removed to mine the

Mancos shale below. It should be possible to salvage this soil which should have reasonably good physical and chemical characteristics. The applicant's representative indicated during a field visit on August 21, 2001, that much of the material on the ridge top might be used for soil. It appears there could be as much as fifteen feet of this sandstone-derived material that could be used as soil. The notice should include a plan for salvaging of this material. An assessment of this area to delineate the size and depths of this material will be necessary for bond calculation purposes.

In summary, the applicant needs to adequately address the following deficiencies in the application:

1. Provide further information about how much soil is available in the Ravola-Toddler Complex, Stent-Chipeta Complex, Chipeta-Badland-Persayo Complex, and Narrow Ridgetop soil areas.

2. Commit to salvage available and suitable soils in the Stent-Chipeta Complex and Chipeta- Badland-Persayo Complex areas. (PBB)

106.6 Plan for protecting & redepositing soils

Using the baseline information, the applicant needs to provide greater detail about how soils will be salvaged, stored, and redistributed. To a large degree, the plan to protect and redeposit soils is contingent on how much soil can be salvaged from different areas of the proposed mine, and most of this information is not yet available. Further discussion of this requirement is in the section of this review dealing with the reclamation plan. (PBB)

106.7 Existing vegetation - species and amount

The report in the application includes a list of species occurring in the mine area and the text discusses the dominant species in the two communities. The report only lists the percentage of bare ground for the mat saltbrush community and a total of bare ground, litter, and rock cover for the shrub and grass community. It needs to show vegetation cover by species and also total vegetation cover for each of these communities. (PBB)

106.9 Location & size of ore, waste, tailings, ponds

The application contains a statement that "all mined ore will be shipped for off-site processing at an approved facility". Please identify where this approved facility is located.

The plan states the raised roadway will form an earthen berm to contain any spillage from the fuel tanks. Use of earthen berms for spill containment is not an accepted practice unless this raised road loop is lined with an impervious material. The use of earthen berms for containment purposes is not recommended. (DJ)

R647-4-107 - Operation Practices

107.4 Deleterious material safety stored or removed
Refer to comments under R647-4-106.9 (DJ)

107.5 Suitable soils removed & stored
Other parts of this review discuss soil salvage. According to Section 106.6, soils from the Ravola-Toddler Complex will be placed in a storage pile and protected by a berm at least one foot high and seeded. Other salvaged soils will be windrowed or temporarily piled adjacent to the mining area, but these areas will not be seeded because they will act as a seedbed. If they are not seeded, the windrows and stockpiles will grow little but weeds, so they need to be seeded unless storage is for less than about a month. (PBB)

107.6 Concurrent reclamation
The only specific description of concurrent reclamation is in Section IV (10) on page 12. According to this section, there are no plans to perform reclamation of the facilities area prior to final closure, but concurrent reclamation of the mining area will consist of sloping completed terraces to control runoff and erosion and respreading surface material salvaged from selected soil types.

Any areas where soil has been respread should be revegetated as soon as possible. This provision needs to be included in the plan for concurrent reclamation. (PBB)

R647-4-109 - Impact Assessment

109.2 Impacts to threatened & endangered wildlife/habitat
Rare plant species that could be in the area are Creutzfeldt cryptantha, San Rafael cactus, and Wright's fishhook cactus. The applicant searched for these species, but the search was conducted at a time when, except for Creutzfeldt cryptantha, it was unlikely to yield results even if the species had been present.

There is no known critical habitat for wildlife species although the application does not contain information about raptor nests. The Division of Wildlife Resources is unaware of raptor surveys in the area but does not consider it to be good habitat for raptors.

The report on threatened, endangered and sensitive species indicates there are prairie dog towns in the area, and burrowing owls could inhabit these areas. The survey was done in October rather than during the nesting season, so it was unlikely burrowing owls would be found.

The applicant needs to recheck for the presence of threatened, endangered, and sensitive species that might be in the area. This survey needs to be timed to coincide with flowering times for the two cactus species of interest and with nesting for burrowing owls. (PBB)

109.3 Impacts on existing soils resources
Impacts on soil resources are discussed elsewhere in this review and in Sections 1, 4, and 5 of the application. (PBB)

R647-4-110 - Reclamation Plan

110.5 Revegetation planting program
Page 4 of Section 1 says no reseeding is planned. This is inconsistent with other parts of the application and needs to be changed. On page 6 of Section 1, the application says only those areas where topsoil is applied will be seeded, so there will be no seeding on the vast majority of the site. However, on page 16, Section 110.2, the application says, "Selected soils types will be removed as possible and respread over the surface upon completion of mining, as described in Section 106.6. The stored material will act as a seedbed; therefore, there are no plans to reseed these areas." This second statement implies there will be no seeding on areas where topsoil is redistributed which means there would be no seeding whatsoever. This is not acceptable.

Topsoil will need to be salvaged and redistributed on the majority of the area, and all topsoiled areas should be seeded, including any areas where soil may be live hauled. Live hauling tends to increase revegetation success, but it is not a substitute for seeding. While not required, the Division recommends seeding Mancos shale areas where topsoil is not applied.

Table 1 in Section 2 shows the seed mix that will be used. The mix is generally acceptable, but the Division recommends some changes. Intermediate wheatgrass and Pacific aster are not adapted to the site and could be deleted. In their place, the Division recommends adding trident saltbush and Palmer penstemon.

According to Section 110.5, the area will be drill seeded. Because drill seeding tends to decrease surface roughness, the Division recommends that the area be broadcast seeded shortly after soil surface preparation is completed. If the operator desires to drill seed, it needs to be done such that seed of some species, including forage kochia, scarlet globemallow, and rabbitbrush, are applied on the surface. If the seed is broadcast seeded, the amount of seed would need to be increased by about 50 percent.

The application needs to indicate when the area will be seeded. The Division recommends seeding in the fall. (PBB)

R647-4-111 - Reclamation Practices

111.5 Land capable of post mining land use
The proposed reclamation plan does not call for soil salvage or revegetation on the majority of the site, so the Division does not consider that the site would be capable of

supporting the postmining land uses of grazing and wildlife habitat under this reclamation plan. With the changes being required, it should be possible to restore the current land uses. (PBB)

111.12 Topsoil redistribution

Three inches of Stent-Chipeta Complex soil was salvaged from the road into the approved small mine site. Upon reclamation, this soil will be replaced and the area seeded. Section 106.6 does not mention that the road will be ripped, but Section 110.2 says all access roads will be ripped 12 inches deep. Roads should be ripped at least two feet deep to relieve compaction.

The soil salvage plan for the Badland-Rubbleland and Badland areas is adequate, but the application needs to present more detail about redistributing soils in the Badland-Rubbleland area. No soil will be salvaged in Badland areas. In the Badland-Rubbleland areas, as much of the soil and rock as possible will be removed. This will be windrowed or temporarily stored adjacent to the mining area and then respread when mining is completed. Currently, soil in the Badland-Rubbleland area is concentrated as colluvium on slopes particularly in minor drainages on the slopes. The application needs to discuss whether soil will be redistributed in this manner or if it will be spread evenly over the entire area.

The application needs to further discuss the sequence of soil salvage operations as they relate to the operation and reclamation plan. Figure 3 in Section 2 shows the mining sequence, but the application needs to show how soil salvage operations will be coordinated into the mining sequence.

If soil from the Ravola-Toddler Complex area is used on other parts of the mine, it should be placed on areas with a similar physiographic position, in other words, relatively flat and low areas rather than on slopes. The Ravola-Toddler Complex soils could be utilized to reclaim the flat pit floors that result from the mining. Soils from the Stent-Chipeta Complex have more rock and could be used on slopes.

Following redistribution, soil will be ripped 18 inches deep, on contour, prior to seeding. This is critical for capturing rainfall on slopes so plants can use it. The Division recommends deep gouging using a trackhoe or similar equipment. (PBB)

R647-4-112 - Variance

The vegetation information is not adequate to determine whether a variance from revegetation requirements can be made for part of the area; however, based on a field visit to the area, the Division is willing to grant a variance for the areas with Badlands soils. While much of the rest of the site has sparse vegetation, there is enough that a variance is not justified.

A variance for salvaging and redistributing soils can be granted for the Badlands area. (PBB)

R647-4-113 – Surety

Cost estimates contained in the application utilized the Means Heavy Construction Data, 12th Annual Edition, 1998. The Means 15th Annual Edition & Cat Performance Handbook, Edition 31, should be used to assure that costs included in the surety information will not have to be escalated to reflect 2001 costs. (DJ)